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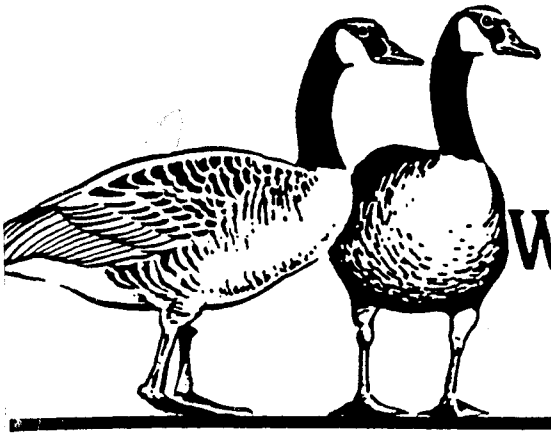

WATERFOWL PROGRAM

ILLINOIS DEPARTMENT OF CONSERVATION

DIVISION OF WILDLIFE RESOURCES

WATERFOWL HARVEST AND HUNTER USE IN THE REND LAKE QUOTA ZONE DURING THE 1990 WATERFOWL SEASON

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Abstract: Rend Lake and the surrounding area in Franklin and Jefferson counties comprise the Rend Lake Quota Zone. Hunter use and harvest at Rend Lake are determined from hunter registration sheets. Hunters are required to register before and after each day's hunt. The known goose harvest is then used as a percentage to project total harvest in the two counties. Rend Lake is assigned a harvest quota equal to 15% of the statewide Canada goose harvest allocation. The statewide Canada goose harvest allocation was 103,500 in 1989 and increased 37% to 142,200 in 1990. The Rend Lake quota was 15,500 in 1989 and increased to 21,300 in 1990. The goose season at Rend Lake opened 10 November and closed 70 days later on 18 January 1991. The daily bag limit was 3 Canada geese for the entire season. In 1990, the duck season at Rend Lake opened 10 November and closed 30 days later on 9 December. A total of 4,239 ducks (2,803 mallards), 3,068 Canada geese and 15 snow geese was harvested by waterfowl hunters on the public hunting areas. This resulted in a projected harvest estimate of 8,766 Canada geese or 41% of the assigned quota in the Rend Lake Quota Zone. Waterfowl hunters spent a total of 14,580 days afield (3% greater than 1989) on the public hunting areas at Rend Lake. The duck harvest increased 10% while the goose harvest decreased 23%. Bag limits (conventional), shooting hours (sunrise), and season length did not change in 1990. Duck hunters reported a success rate of .59 ducks per trip while goose hunters reported a .31 success rate after the close of the duck season. Access areas which recorded the highest duck harvest included: Bonnie Camp (901), Cottonwood (805), Silo (504), Waltonville East (419), Dareville (319) and Casey Fork Dam (305). Goose hunters were the most successful at Turnip Patch (329), Lambrusco (287), Honkers Point (263), Ina Ramp (226), Casey Fork Dam (215) and Whistling Wings (210). Canada goose numbers at Rend Lake in 1990 reached a record December high of 125,000 compared to 18,000 in 1989, and 72,000 in 1988. Canada goose numbers peaked at 136,000 on 14 January 1991.

INTRODUCTION

Rend Lake constitutes one of the largest and most diverse waterfowl areas in Illinois, offering excellent hunting opportunities for both ducks and Canada geese. Waterfowl harvest at Rend Lake has been monitored annually since 1975. In 1979, waterfowl hunters using Rend Lake public access areas were required to register and report their daily harvest. The registration system was developed to determine hunter use and harvest at Rend Lake. This technique has proven to be reliable and accurate since its inception. Commercial goose clubs on private lands in Jefferson and Franklin counties are required to obtain a license and submit daily hunter registration and harvest sheets at the end of the hunting season. Prior to the 1982 season, noncommercial goose hunting areas were also required to register hunters and report harvest. Since 1982, the Canada goose harvest on private land in the surrounding area has been derived from the Illinois Waterfowl Hunter Questionnaire Survey. This statewide survey has been conducted since 1981 and will continue on an annual basis.

Rend Lake and the surrounding area in Franklin and Jefferson counties were designated as a Mississippi Valley Population (MVP) Canada goose harvest quota zone in 1986. The creation and protection provided by the quota zone has allowed for liberalization of harvest regulations while preventing an overharvest in a high concentration goose area.

The Rend Lake Wildlife Management Area is a cooperative project between the U.S. Army Corps of Engineers (COE) and the Illinois Department of Conservation (DOC). The project consists of approximately 16,000 acres of land and water in Jefferson and Franklin counties. Implementation of the waterfowl harvest and hunter use survey was partially funded by Pittman-Robertson Project W-83-D.

Employees of the Division of Wildlife Resources, Division of Lands, and the COE assisted in the distribution and collection of hunter registration sheets in 1990.

METHODS

Waterfowl harvest and hunter use at all Rend Lake public access areas (40) were monitored using the mandatory registration system. A registration box was placed at each hunter access area around the lake as well as the Big Muddy and Casey Fork Management Areas. Hunters were required to register before hunting and report their daily harvest by number and species following each hunt. Registration sheets were collected daily and the number of hunters and harvest by species were totaled for individual access areas each day of the season.

Canada goose harvest and hunter activity on private land surrounding Rend Lake were estimated using three different methods. Commercial licenses were issued for all areas where payment was received for goose hunting privileges. On these commercial clubs, all hunters were required to register before hunting and report their harvest at the end of each hunt. Registration sheets were submitted by club owners at the end of the season to the Union County Refuge Office for tabulation of harvest and hunter use. The goose harvest on other private lands surrounding Rend Lake in Franklin and Jefferson counties was determined from the Statewide Waterfowl Hunter Questionnaire Survey. This was conducted after the 1990 waterfowl season (Anderson 1991). Finally, the projected total goose harvest in the quota zone was estimated using the mean reported harvest on the public hunting areas in past years. Analysis of the Canada goose population and harvest data at Rend Lake over the past five years revealed that hunters on the public hunting areas have reported a consistent 35% of the total goose harvest in the Rend Lake Quota Zone. This percent was then used as a base to project total harvest throughout the season in the quota zone. Goose harvest on the public hunting areas was tabulated daily by DOC staff at the Mt. Vernon Game Farm. Projected harvest in the zone was determined and harvest update information was forwarded to the Rend Lake COE office, where it was provided to the public throughout the season by a recorded telephone message.

Canada goose populations at Rend Lake and other wintering areas in southern Illinois were monitored weekly by aerial inventories starting 15 October and continuing to 4 February. DOC biologists conducted the inventories using Department of Transportation aircraft (Cessna 210 or Cessna 337).

RESULTS AND DISCUSSION

The projected fall flight estimate for MVP Canada geese in 1990 was 1.3 million (1.25 million in 1989) which resulted in continued liberalization of harvest regulations. The late snowmelt across large sections of the MVP breeding range resulted in later than usual nesting activities. Nest success was low due to high predation, therefore the fall flight comprised a high proportion of adult geese. The Canada goose harvest allocation for Illinois increased from 103,500 in 1989 to 142,200 in 1990. Season length in the quota zone increased from 56 days in 1989 to 70 days in 1990. Similarly, season length outside the quota zone (southern zone) increased from 60 days in 1989 to 70 days in 1990. The daily bag limit for Canada geese increased to 3 for the entire season.

The Rend Lake Quota Zone annually receives 15% of the statewide harvest allocation. The harvest quota assigned to Rend Lake increased (37%) from 15,500 in 1989 to 21,300 in 1990. Hunters were afield for the entire 70 day season in 1990. The season opened 10 November and closed 18 January.

Extensive rainfall in June throughout prairie Canada and the north-central states improved wetland conditions. These conditions continued during the summer, especially in Canada which helped maintain pond numbers throughout July. Total pond numbers increased 66% in prairie Canada, but decreased 46% in the north-central United States from 1989. The total duck breeding population in all surveyed areas was essentially unchanged (+1%) from 1989. Mallard breeding pairs decreased (4%) from 6.1 million in 1989 to 5.9 million in 1990. This represents a 30% decline from 1979 and is 43% lower than the 10.3 million recorded in 1970 (Reynolds et al. 1990). Of the 10 major species, only 4 (gadwall, canvasback, northern shoveler, and green-winged teal) increased more than 10% from 1989. The predicted fall flight index for ducks increased from 57 million in 1989 to 60 million in 1990.

Season length (30 days), shooting hours (sunrise) and bag limits (conventional) did not change in 1990. Although the U.S. Fish and Wildlife Service offered the one-half hour before sunrise shooting hours option, Illinois selected sunrise shooting hours for the second consecutive year. The duck season at Rend Lake opened 10 November and closed 9 December.

Unusually mild weather prevailed throughout most of the duck season at Rend Lake, however the mallard harvest and total duck harvest increased 11% and 10%, respectively. Overall, the mallard migration through Illinois was much later than normal. These same mild conditions also delayed the migration of Canada geese to Illinois from Wisconsin. The first major migration of Canada geese from Wisconsin occurred during the period of 5 - 10 December. Smaller migrations occurred weekly through 14 January.

Hunter Use

Waterfowl hunters reported a total of 14,580 days afield in 1990 (3% greater than 1989) (Table 1). The 5-year (1986-1990) average was 14,529 days afield, with a minimum of 6,555 in 1976 and a maximum of 17,873 in 1981. Goose hunters were given the opportunity to harvest geese 40 days after the close of the duck season in 1990.

Daily registration sheets revealed that 7,151 hunters (no change from 1989) were afield during the duck season and an additional 7,429 hunters (7% greater than 1989) pursued geese after the close of the duck season. During the duck season, the mean number of hunters per day was 238, and an average of 186 goose hunters per day were active on Rend Lake after the close of the duck season.

Public access areas receiving the greatest hunting pressure included: Cottonwood (1,224), Honkers Point (924), Whistling Wings (887), Bonnie Camp (826), Casey Fork Dam (825), and Lambrusco (762) (Figure 1).

Four concrete pits were placed at staked locations at Whistling Wings access area just prior to the start of waterfowl season. A daily lottery drawing was conducted at 4:30 a.m. to allocate these pits. Intense competition and conflicts between hunters in past years resulted in this type of hunter management system for this access area.

Fifteen licensed commercial goose clubs in the Rend Lake Quota Zone reported a total of 1,843 hunter days afield in 1990 (30% less than 1989). The Statewide Waterfowl Hunter Questionnaire Survey indicated that a total of 7,200 hunters (3% greater than 1989) spent 51,000 days afield (20% greater than 1989) in the Rend Lake Quota Zone (Anderson 1991).

Harvest

Hunters reported a total harvest of 4,239 ducks (10% greater than 1989) at Rend Lake during the 1990 season (Table 2). Mallards comprised 66% of the harvest, wood ducks 12%, green-winged teal 6% and black ducks 4%. The 1990 mallard harvest (2,803) was again below (5%) the 5-year (1986-1990) average of 2,951. Harvest trends for dabbling ducks and diving ducks from 1986-1990 are shown in Figures 2 and 3.

Access areas with the highest total duck and mallard harvest included: Bonnie Camp (901, 709), Cottonwood (805, 589), Silo (504, 336), Waltonville East (419, 194), Dareville (319, 191) and Casey Fork Dam (305, 206) (Figure 4). These areas accounted for 77% of the total duck harvest on the public hunting areas in 1990.

A total of 3,068 Canada geese (23% less than 1989) was harvested on the public hunting areas at Rend Lake in 1990 (Table 3). The goose harvest is often incidental to duck hunting during the duck season. Hunters reported a harvest of 741 geese or 24% of the total during the 1990 duck season. The majority of the harvest (76%) occurred in late December and January after the close of the duck season when 7,429 hunters harvested 2,327 Canada geese. Public access areas with the highest goose harvest included: Turnip Patch (329), Lambrusco (287), Honkers Point (263), Ina Ramp (226), Casey Fork Dam (215) and Whistling Wings (210) (Figure 5).

Using the reported harvest on public hunting areas (3,068) as 35% of the total Rend Lake Quota Zone goose harvest resulted in a projected harvest estimate of 8,766 Canada geese or 41% of the assigned quota. The harvest estimate derived after the season from the Statewide Hunter Questionnaire Survey revealed a similar harvest estimate of 8,763 geese in the Rend Lake Quota Zone (Anderson 1991). The U.S. Fish and Wildlife Service waterfowl parts survey revealed a harvest estimate of 15,059 Canada geese in the two county quota zone.

Fifteen commercial goose hunting clubs reported a total harvest of 691 Canada geese for the season (18% less than 1989) (Whitton 1991).

Hunter Success

Duck hunter success at Rend Lake (Table 3) improved slightly in 1990 (.59) compared to 1989 (.54), despite mild weather conditions throughout the duck season. Goose hunter success on the public hunting areas is influenced by cropping patterns, weather conditions, migration chronology and the current age structure of the population. After the close of the duck season, goose hunters reported a success rate of .31 compared to .45 in 1989. The success rate in the Rend Lake Quota Zone as determined by the Statewide Hunter Questionnaire Survey was .17 goose per hunter in 1990 compared to .30 in 1989. Goose hunters on commercial clubs in the Rend Lake Zone reported a success rate of .37 goose per hunter-trip in 1990 (up from .32 in 1989).

Waterfowl Population Status

Canada goose numbers at Rend Lake increased from 43,000 on 5 December to 125,000 on 31 December (Table 4). Peak number of Canada geese was recorded on 14 January (136,000), (170,000 in 1989-90) (Table 5, Figure 6). Canada goose numbers in southern Illinois and western Kentucky in 1990-91 also peaked on 14 January (820,000) (871,150 in 1989-90).

Goose use-days (GUD) at Rend Lake increased significantly from 1989-90 (3.7 million) to 1990-91 (7.3 million). In 1990-91, Rend Lake accounted for 7.3 million GUD (20% of the total), Union County Refuge 6.6 million GUD (18% of the total), Horseshoe Lake Refuge 9.6 million GUD (27% of the total), Crab Orchard NWR 8.5 million GUD (24% of the total), and Ballard County, Kentucky 3.7 million GUD (10% of the total). GUD's in southern Illinois and western Kentucky decreased from 38 million in 1989-90 to 35.9 million in 1990-91. However, GUD's in 1990-91 (35.9 million) were greater than those recorded in 1988-89 (34.2 million) and 1987-88 (29.5 million).

Six waterfowl surveys were conducted by the Illinois Natural History Survey between 11 October and 13 December. Duck numbers on Rend Lake increased from 490 on 11 October and reached a peak of 13,800 on 13 December. Total duck numbers surveyed in 1990 decreased 46% from similar surveys conducted in 1989. Aerial surveys of the Illinois and Mississippi Rivers also showed declines in total ducks of 43% and 22%, respectively.

Mallard peak number was reported on 13 December (13,500) compared to 21 November (15,000) 1989. Mallard numbers totaled 32,450 during the 5 surveys conducted in the fall of 1990 compared to 37,100 for the same survey period in 1989. Significant waterfowl population decreases were recorded on most major river systems and management areas in Illinois during 1990-91. Some of the population decreases may be attributed to a change in survey observers in 1990-91.

CONCLUSIONS

Food (corn, millet, and buckwheat) availability in the subimpoundments and refuge were good in 1990. Volunteers from local, private waterfowl groups planted approximately 100 acres of corn and small grains throughout the subimpoundments. The heavy equipment crew cleared numerous areas of willow and maple in the refuge and subimpoundments. Management of wheat and clover improved significantly from 1989. Associated with this improvement, goose use-days at Rend Lake increased 97% from 1989. Timely rains, low lake levels and increased crop acreages improved crop distribution and yields throughout the area. No outbreak of waterfowl disease was detected at Rend Lake in 1990-91.

Habitat conditions in Canada and the north-central states exhibited some improvement in some areas in 1990. However, many wetlands and the margins surrounding them, which are crucial for upland nesting waterfowl, have been severely impacted by agricultural operations. Above normal precipitation is necessary to reduce soil moisture deficits which will stimulate vegetative growth. Duck populations will increase only after residual vegetative cover is restored and wetland basins are recharged.

Snowmelt across a large portion of the MVP breeding grounds resulted in later than usual nesting. High predation and low nest success contributed to poor production in 1990. The goose harvest in the Rend Lake Quota Zone was poor despite very high expectations associated with the large fall flight forecast. Mild weather during the first half of the season and a high proportion of adults in the flock resulted in 41% of the quota being achieved. Despite poor production in 1990, the large proportion of adults in the MVP should provide a fall flight greater than 1.3 million Canada geese in 1991.

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Table 1. Waterfowl harvest and hunter use on public hunting areas at Rend Lake, Illinois for the 1990 waterfowl season.

PUBLIC ACCESS AREAS	TOTAL HUNTERS	TOTAL HARVEST MALLARDS	TOTAL HARVEST DUCKS	TOTAL HARVEST C. GEESE
1. Blue Gill Hole	38	0	0	2
2. Bonnie Church Camp	826	709	901	13
3. Bonnie South	546	25	45	98
4. Buck Creek	276	58	107	14
5. Button Bush Bay	21	0	0	0
6. C & E Lot	361	0	5	90
7. Casey Fork Dam	825	206	305	215
8. Casey Fork West (Genevo)	260	25	69	91
9. Cottonwood	1,224	589	805	194
10. County Line	494	4	9	116
11. Cypress View	152	22	41	24
12. Dam West	65	29	46	33
13. Dareville	648	191	319	164
14. Elk Prairie	42	14	17	1
15. Gun Creek West	90	8	10	6
16. Hamilton Branch	19	3	7	3
17. Honkers Point	924	6	15	263
18. Ina Parking Lot	428	3	6	82
19. Ina Ramp	546	14	22	226
20. Jackie Branch	374	7	22	139
21. Ken Gray	414	6	9	95
22. Lambrusco	762	2	2	287
23. Mine 21	308	1	6	46
24. Nason North	79	29	59	4
25. Nason South	76	9	12	10
26. North Marina	94	0	0	18
27. Pin Oak Flats	196	122	162	4
28. River Road	60	13	19	0
29. RLCD Cemetary	130	8	16	13
30. RLCD Ramp	213	6	13	53
31. Ryder Bottoms	47	20	33	0
32. Sailboat Harbor	219	4	11	38
33. Silo	755	336	504	49
34. Turnip Patch	735	16	48	329
35. Waltonville Dam	145	37	47	13
36. Waltonville East (148)	626	194	419	13
37. Ward Branch	639	7	20	112
38. Whistling Wings	887	80	99	210
39. Willbanks Woods	5	0	2	0
40. Woodcock Ridge	31	0	7	0
TOTALS	14,580	2,803	4,239	3,068

Table 2. Harvest of ducks by species at Rend Lake, (Southern Zone), Illinois, 1983 through 1990. Data collected from hunter registration reports.

SPECIES	1983	1984	1985	1986	1987	1988	1989	1990
DABBLING DUCKS								
American Wigeon	249	198	115	142	145	54	95	77
Black Duck	147	251	113	122	179	182	261	184
Blue-Winged Teal	102	227	38	27	34	10	14	13
Gadwall	395	206	182	291	199	57	126	88
Green-Winged Teal	321	256	152	205	323	168	285	255
Mallard	5,447	5,002	3,273	2,964	3,915	2,556	2,519	2,803
Northern Shoveler	105	109	96	51	107	32	53	35
Pintail	118	98	85	62	82	23	41	35
Wood Duck	734	457	279	531	660	271	310	503
TOTAL	7,618	6,804	4,333	4,395	5,644	3,353	3,704	3,993
DIVING DUCKS								
Bufflehead	36	70	52	54	35	30	27	41
Canvasback	53	42	46	15	0	0	0	1
Common Goldeneye	1	7	4	0	0	0	0	0
Redhead	65	158	70	68	24	21	14	12
Ring-Necked Duck	237	304	161	133	163	92	52	104
Ruddy Duck	57	40	27	20	17	7	13	7
Scaup	200	306	160	174	105	79	58	81
TOTAL	649	927	520	464	344	229	164	246
TOTAL ALL SPECIES	8,267	7,731	4,853	4,859	5,988	3,582	3,868	4,239

Table 3. Waterfowl harvest and hunter success on public hunting areas at Rend Lake, Illinois, 1977-1990.

	NUMBER OF	HARVEST		HUNTER SUCCESS	
YEAR	HUNTERS	DUCK	GEESE	DUCKS	GEESE
1977	8,377	8,748	1,630	1.04	.19
1978	12,622	9,060	4,604	.78	.36
1979	12,978	5,375	1,917	.52	.15
1980	16,134	5,493	3,508	.39	.22
1981	17,873	6,285	2,827	.46	.16
1982	14,682	6,845	1,109	.57	.08
1983	13,352	8,270	1,856	.76	.14[a]
1984	11,050	7,724	610	.70	.06
1985	8,964	4,901	1,214	.55	.14
1986	14,300	4,859	2,042	.52	.32[b]
1987	14,867	5,988	1,676	.63	.28[c]
1988	14,748	3,582	4,177	.49	.43[d]
1989	14,148	3,868	3,971	.54	.45[e]
1990	14,580	4,239	3,068	.59	.31[f]

[a].34 last 15 days of goose season after close of duck season

[b]Last 23 days of goose season after close of duck season

[c]Last 28 days of goose season after close of duck season

[d]Last 30 days of goose season after close of duck season

[e]Last 36 days of goose season after close of duck season

[f]Last 40 days of goose season after close of duck season

Table 4. Canada goose numbers at Rend Lake through the fall and winter of 1987-1990.

1987		1988		1989		1990	
DATE	NO. OF GEESE	DATE	NO. OF GEESE	DATE	NO. OF GEESE	DATE	NO. OF GEESE
10-13-87	6,000	10-15-88	4,500	10-23-89	5,000	10-15-90	3,500
10-19-87	6,000	10-24-88	7,000	10-31-89	8,000	10-22-90	5,000
10-27-87	5,000	10-31-88	7,500	11-06-89	9,000	10-30-90	12,000
11-02-87	9,000	11-07-88	9,500	11-13-89	12,000	11-07-90	13,000
11-09-87	9,000	11-14-88	14,000	11-21-89	14,000	11-13-90	15,000
11-18-87	10,000	11-21-88	7,500	11-29-89	14,000	11-19-90	12,000
11-23-87	10,000	11-28-88	7,000	12-06-89	18,000	11-26-90	12,000
12-09-87	12,000	12-05-88	17,000	12-11-89	14,000	12-05-90	43,000
12-16-87	18,000	12-12-88	40,000	12-18-89	13,000	12-10-90	70,000
12-21-87	68,000	12-19-88	72,000	12-26-89	3,000	12-19-90	80,000
12-29-87	50,000	01-04-89	90,000	01-02-90	40,000	12-31-90	125,000
01-04-88	50,000	01-10-89	75,000	01-08-90	90,000	01-14-91	136,000
01-11-88	74,000	01-17-89	70,000	01-16-90	170,000	01-22-91	112,000
01-25-88	110,000	01-23-89	135,000	01-22-90	120,000	02-04-91	90,000
				01-29-90	85,000		

Table 5. Peak numbers of Canada geese at Rend Lake, Illinois 1971-1991.

YEAR	NUMBER OF GEESE	DATE
1971-72*	6,000	Dec. 22
1972-73	2,000	Dec. 13
1973-74	13,000	Jan. 04
1974-75	32,000	Dec. 18
1975-76	50,000	Jan. 22
1976-77	42,000	Dec. 14
1977-78	100,000	Jan. 23
1978-79	62,000	Jan. 04
1979-80	90,000	Jan. 14
1980-81	88,000	Jan. 27
1981-82	120,000	Jan. 18
1982-83	40,000	Feb. 03
1983-84	44,000	Feb. 07
1984-85	72,000	Jan. 15
1985-86	70,000	Dec. 09
1986-87	65,000	Jan. 13
1987-88	110,000	Jan. 25
1988-89	135,000	Jan. 23
1989-90	170,000	Jan. 16
1990-91	136,000	Jan. 14

*First year that Canada geese started using Rend Lake

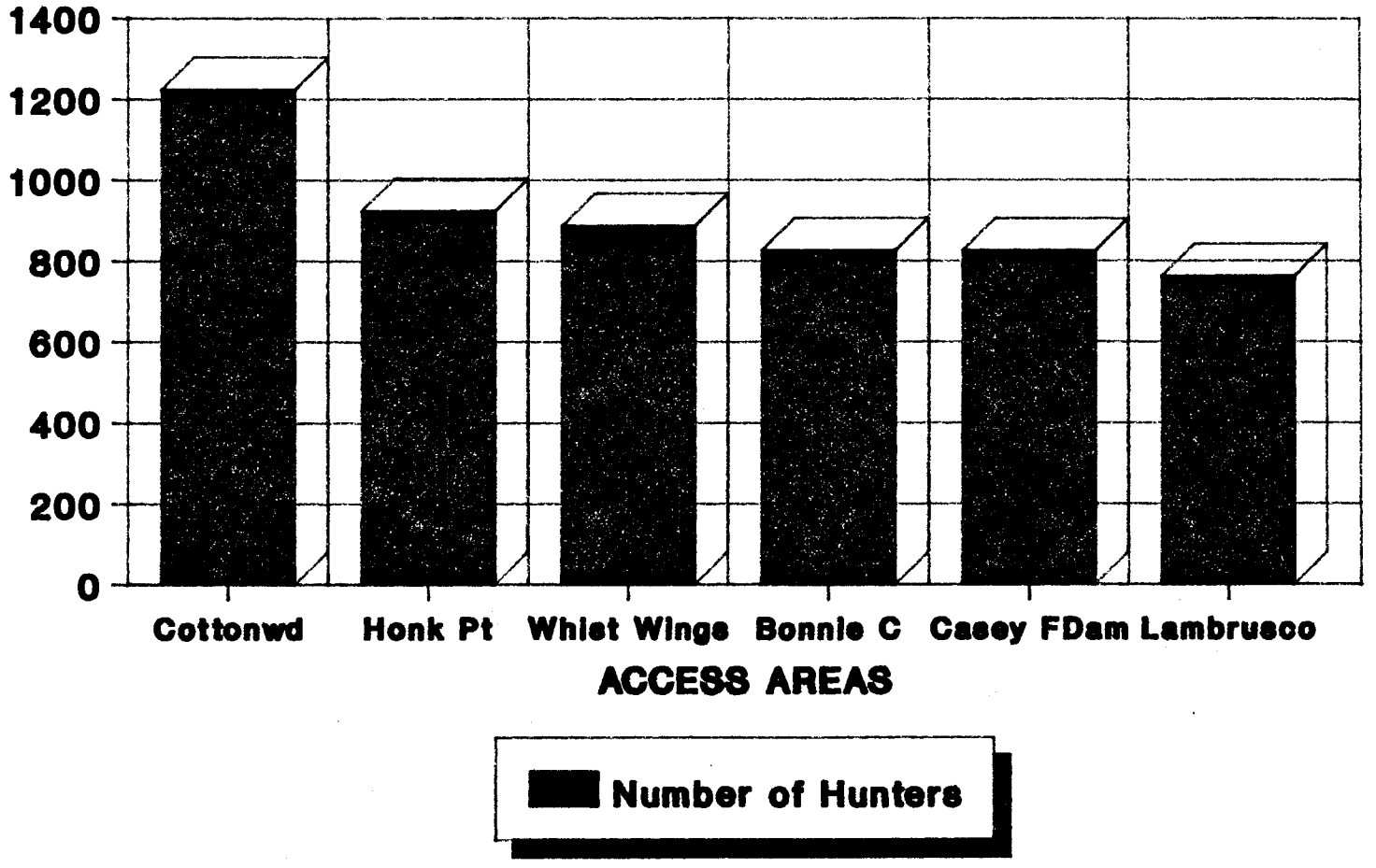

Figure 1. Number of Hunters at Six Access Areas at Rend Lake During 1990.

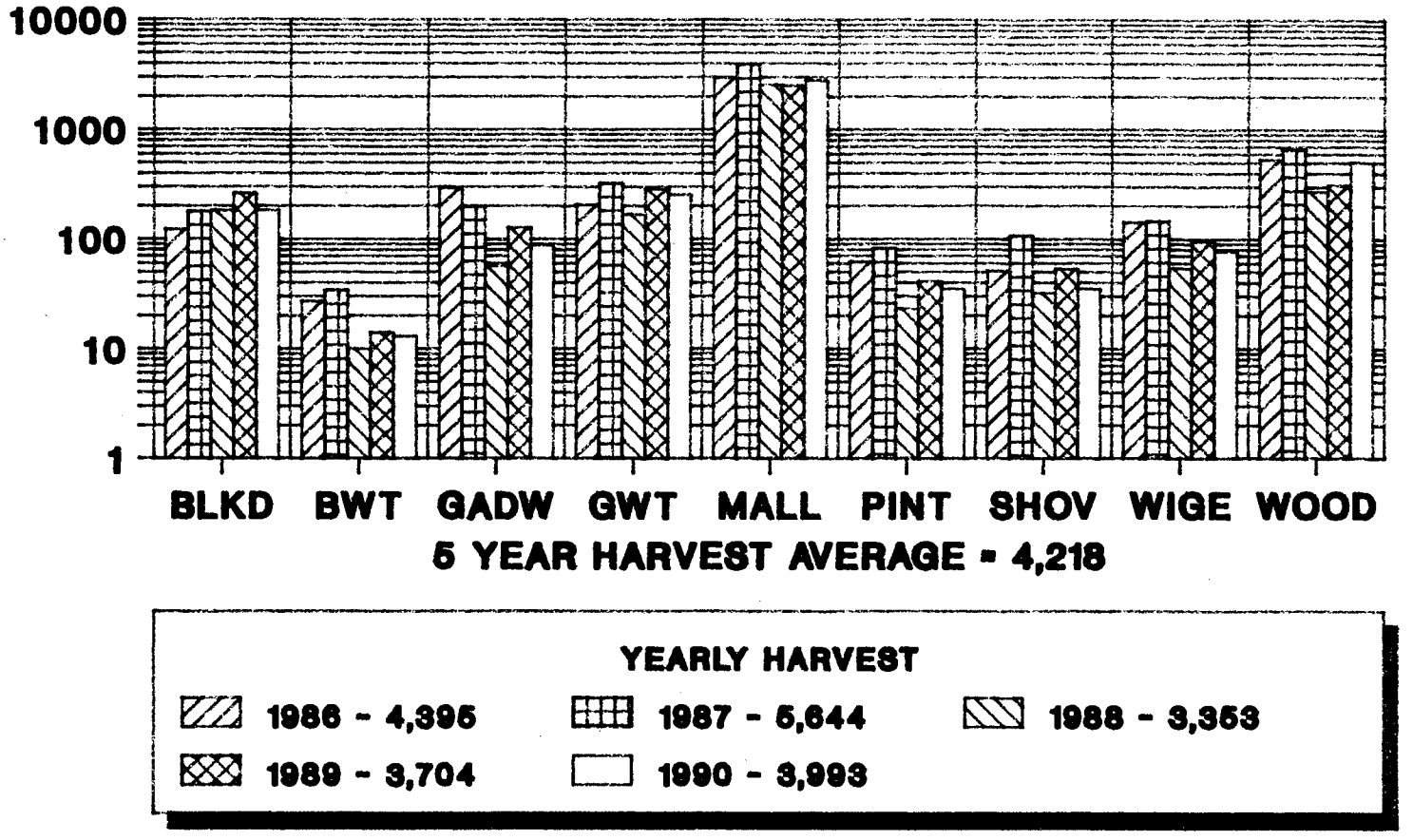

Figure 2. Dabbling Duck Harvest at Rend Lake from 1986-1990.

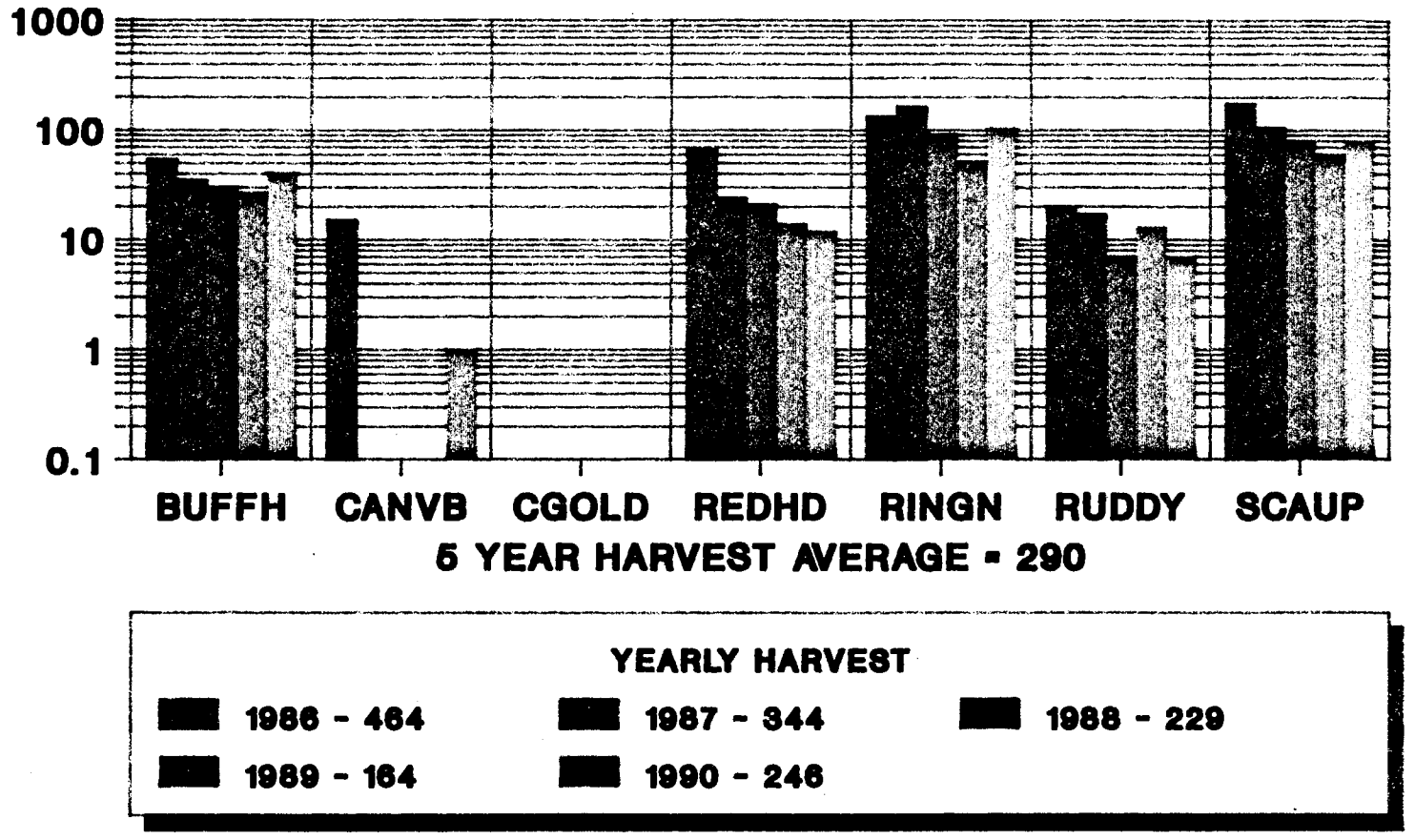

Figure 3. Diving Duck Harvest at Rend Lake from 1986-1990.

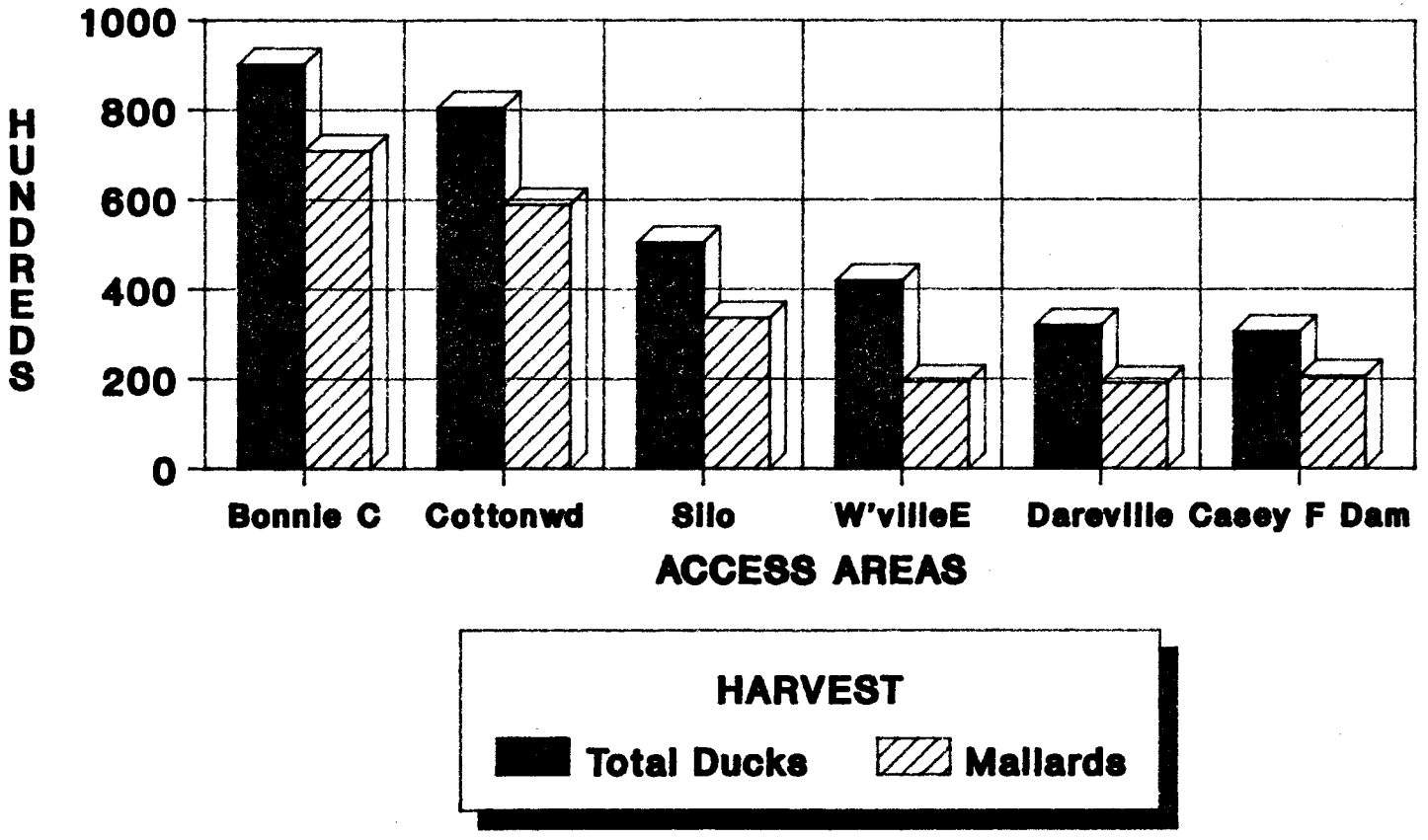

Figure 4. Total Ducks, and Mallard Harvest at Six Access Areas at Rend Lake During 1990.

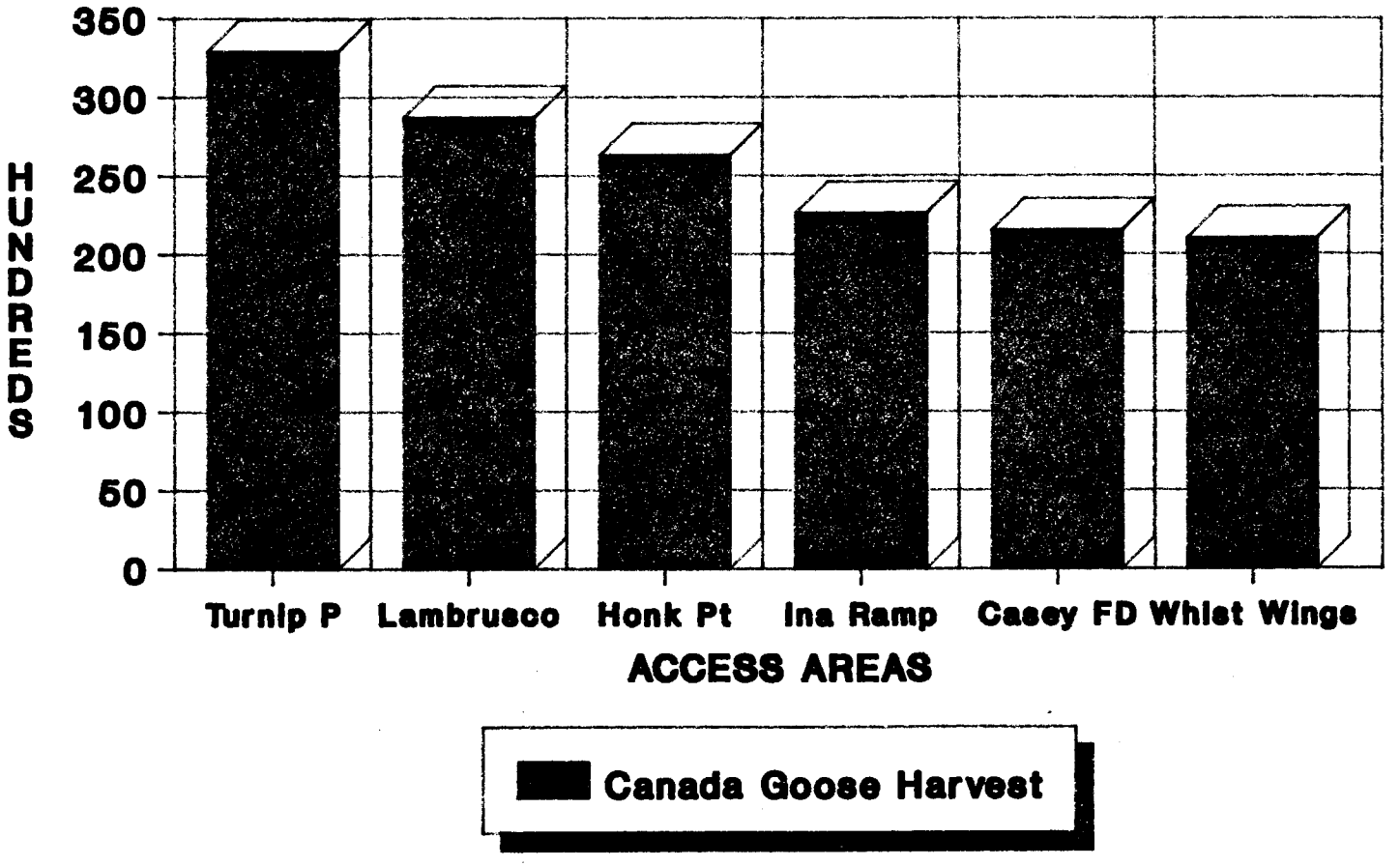

Figure 5. Canada Goose Harvest at Six Access Areas at Rend Lake During 1990.

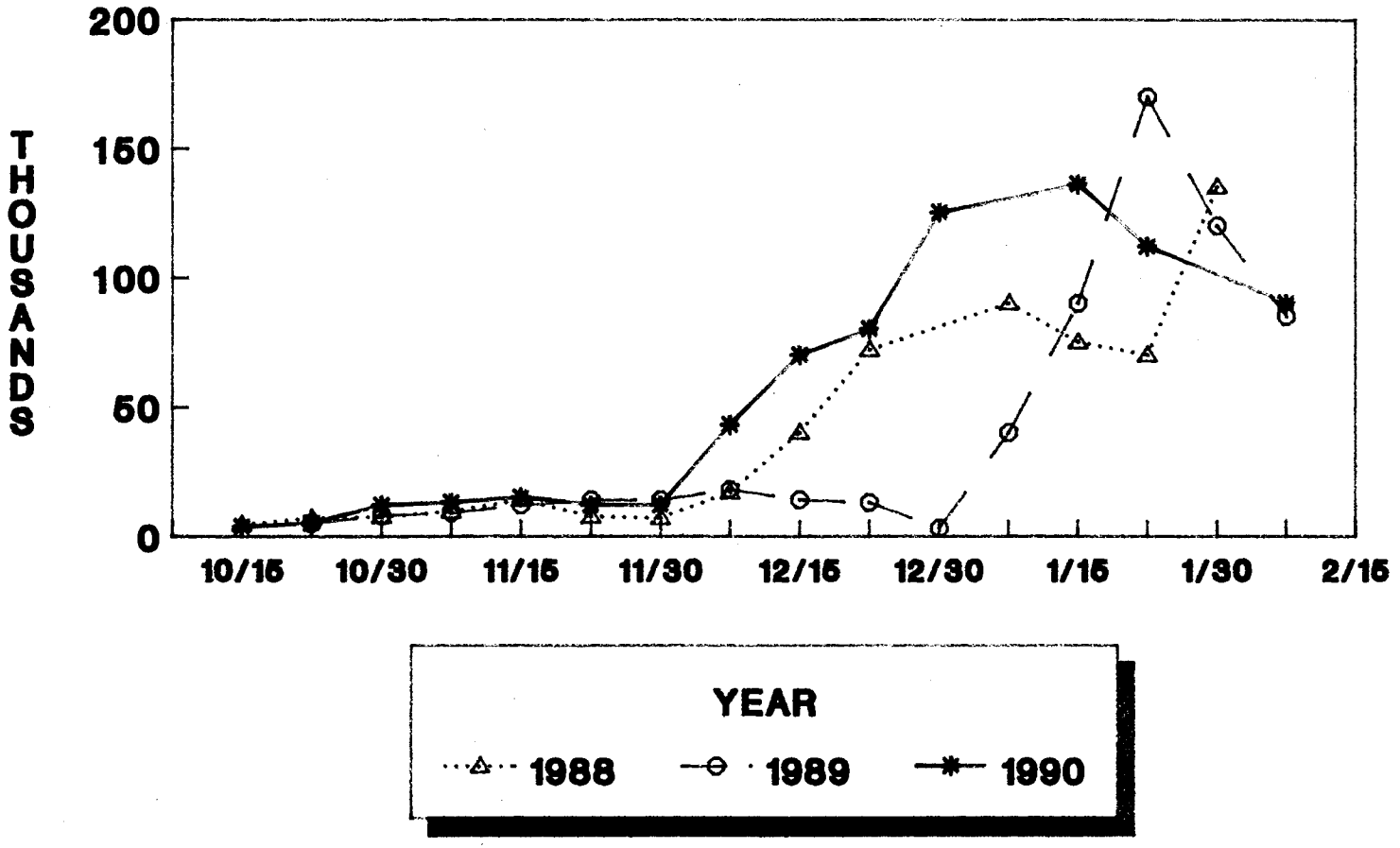

Figure 6. Numbers of Canada Geese at Rend Lake from 1988-1990.